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**(Version 1) - Algebra Skills Inventory**

Work in pencil, showing all work. Remember you'll earn 100% if you attempt every problem; correctness does not matter. Good luck.

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Evaluate the expression for the given value of the variable.

1.  $6y + 7$  when  $y = 3$

2.  $8s + 5$  when  $s = 5$

3.  $3x + 14$  when  $x = 4$

4. Write the expression in exponential form.  
 $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

5. Use a calculator to evaluate the power.  
 $6^2$

6. Evaluate the expression for the given value of the variable.

$2x^3 - 14$  when  $x = 3$

7. Evaluate the expression.

$2 \cdot 6 - 5$

8. Evaluate the expression for the given value of the variable.

$2y^2 \div 2 + 16$  when  $y = 5$

9. Use a calculator to simplify the expression.

$48 \cdot 0.5 + 4^2 - 2.2 + 2.8 \cdot 3$

10. Determine whether the following is an expression, an equation, or an inequality.

$-x - 1$

11. Use mental math to solve the equation.

$$15 = m - 7$$

12. Write the phrase that represents the expression.

$$a + 4$$

Write the sentence as an equation or inequality.

13. A number increased by 7 is more than  $-2$ .

14. A number decreased by 18 is 10.

Solve the equation.

15.  $5x + 1 = 51$

16.  $\frac{9}{12}y - 63 = 0$

17. A jumbo jet carries 310 passengers, 40 in first class, and the remainder in coach. If the average first class ticket is \$810 and the average coach ticket is \$515, how much will the airline gross if the plane is full?

18. Solve the equation.

$$6(a + 3) = 9[a - (1 - a)]$$

19. Solve for  $t$ .

$$-7 = t + 5s$$

20. Simplify the expression.

$$-\sqrt{5} - \sqrt{64} - 2\sqrt{45}$$